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Social Skills Training to Reduce Withdrawn Behaviors in Preschool Children

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ABSTRACT

The purpose of the present study was to examine the efficacy of two social skills interventions, coaching and peer reinforcement, as treatments to enhance the social interactive skills in socially isolated preschool children. Ten preschool children were selected to participate in this study. Four of the participants were socially isolated children and 6 children served as the peer reinforcing agent. Each of the 4 participants were exposed to both treatments utilizing a multiple baseline design. Results indicated that although students' interactions increased slightly with both interventions, performance was better under a combination of coaching and peer reinforcement condition. Increases were noted from baseline to the coaching intervention phase and further increases were noticed from the coaching intervention phase to the coaching and peer reinforcement phase. Furthermore, increases were maintained when the interventions were withdrawn. It is still unclear as to whether the coaching intervention in isolation or the combination of the two interventions were the basis for the increases.

Social Skills Training to Reduce Withdrawn Behaviors in Preschool Children

Researchers have been studying childhood isolation since the late 1960s. Robert O'Connor (1969) decided to focus on this class of behaviors because of the problems that may result from childhood isolation in later development. Social isolation is a broad term defined in various ways in the research literature. The absence or very low rate of social interaction was a criterion adopted by Walker and Hops (1973). In addition, Walker and Hops (1973) proposes that the use of a child's total interaction rate for defining social isolation is based on the assumption that, regardless of the cause and effects, a child who interacts at a low rate is missing developmentally important socialization. Other investigators (e.g., Bornstein, Bellack, & Hersen, 1977) have used quality of interaction and outcome of peer relationships to define social isolation which includes a harmful interaction style that leads to rejection, lack of knowledge about how to interact with peers, and a fear associated with interaction that in turn lessens any response. Quality of interaction has primarily focused on a low rate of positive interaction behaviors, such as sharing, initiation, and expression of approval (Wanlass & Prinz, 1982).

The outcomes of peer relationships have to do mainly with how peers respond to or evaluate the child who has the problem. Specifically, the outcomes could include acceptance or rejection,

frequency of being asked to join in activities, and degree of teasing behavior directed at the child (Wanlass & Prinz, 1982). Some investigators (Gresham & Nagle, 1980; Lilly, 1971; Rucker & Vincenzo, 1970) specifically assessed sociometric status to determine active rejection, lack of friends, and low preference by peers for playing with or working with a child.

Children that are socially isolated traditionally have not received as much attention as their disruptive peers and they do not cause any disruption in the classroom or present special instructional problems for the teacher or other school professional. Presently, socially isolated children are still not receiving very much attention and consequently the educational system has been somewhat unresponsive to their special needs and/or problems. Because of teachers' failure to percieve social isolation as problematic, they are not highly motivated to seek special assistance in managing or instructing these types of children. As a result, socially isolated children are less likely to be identified and referred for special services when compared to their peers who disrupt the classroom atmosphere. Therefore, social isolation represents a class of behavior problems that are not as frequently referred by teachers as are disruptive behaviors (Wanlass and Prinz, 1982). Gresham & Evans (1987) suggested that approximately 15% of all children referred to school psychologists and other mental health professionals in the school are socially withdrawn.

Greenwood, Walker, and Hops (1977) suggested that it is very important that children who are socially isolated be identified early in their school career, preferably in preschool or kindergarten. Early identification is important because, in its most serious form, socially isolated children can have a high vulnerability to several categories of psychopathologies. Failure to develop social behavior, speech, and appropriate play can be associated and/or characteristics of many childhood psychopathologies such as childhood autism, childhood schizophrenia, childhood depression, and anxiety-related reactions. Children with these childhood deficits engage in little or no social interaction (Wanlass & Prinz, 1982). Many of these disorders start in early years and persisit through school and in adult life. There is evidence that soically withdrawn behavior is a stable characteristic that that starts early in childhood (Campbell, 1998). In addition, children who are socially isolated are at further risk for later development of problems such as academic underachievement and educational failure (Kohn, 1977), juvenile delinquency (Roff, Sells, & Golden, 1972), and adulthood mental health difficulties (Cowen, Pederson, Babigian, Izzo, & Trost, 1973). Prevention of such adjustment problems is one of the long-range goals of intervention with children who are socially isolated.

Over the past four decades, a great amount of attention had been placed on children who are socially isolated and their

behaviors. However, in the last decade the attention has been declining on children who are isolated and more focus has been placed on other disorders, such as externalized behavior and learning. This is evident by the lack of literature in the area.

Interventions

Most researchers would agree that some children lack specific skills necessary to function successfully in a social setting like school. Children who exhibit internalizing behaviors are often severly deficient in social skills (Bierman & Montminy, 1993). Some type of effective skill training is necessary to increase the probability of children who are socially isolated becoming successful in the school setting as well as other settings. Three types of social skills intervention: reinforcement, modeling, and coaching were examined by Hops (1983). It was suggested that there appears to be considerable overlap when the specific components of each of the three major treatment procedures are examined. For example, reinforcement procedures are not used in isolation and therefore can be used in combination with both the coaching and modeling procedures. Hops (1983) suggested that coaching procedures can be combined with reinforcement contingencies to provide a child with a set of skills and immediate entry into the peer group without the need for extensive interventions or programmed generalization outside the natural setting. In addition, interventions for socially isolated children have involved both application of individual

procedures or combinations of procedures that are incorporated into treatment packages. The purpose of the present study is to investigate two types of social skill interventions, peer reinforcement and coaching, in increasing social behaviors of socially isolated children.

Peer Reinforcement

Peer-reinforcement, according to Strain and Fox (1981), involves changes in the social behavior of target children that are brought about by other children. With respect to social isolation, peer-reinforcement strategies attempt to change the withdrawn child's social environment by changing the frequency and quality of social interactions between the withdrawn child and his or her peers.

Hartup (1964) provided the framework concerning the effectiveness of young peers as reinforcing agents. This area of research was necessary to investigate because of the paucity of empirical evidence. The initial study by Hartup (1964) investigated the effectiveness of peers as reinforcing agents and friendship status. The performance of nursery school children on simple, repetitive tasks under two conditions (verbal approval administered by liked peers and approval administered by disliked peers) was examined. The participants were assigned randomly to groups, LP (reinforced by liked peers) and DP (reinforced by disliked peers). The two age groups were broken down into four subgroups: LP 4 year-old, LP 5 year-old, DP 4 year-old, and DP 5

year-old. A picture sociometric test was utilized to assess whether the subjects liked or disliked someone in their class.

As the subjects performed the simple task the reinforcing agent provided positive reinforcement. Results of this study suggested that liked and disliked peers did influence performance. There was an increase in perofrming the simple task when the reinforcing agent was a disliked rather than a liked peer. Also, performances of 5-year-olds were better maintained than performance of 4-year-old.

An observational method developed by Charlesworth and Hartup (1967) was use to obtain normative information on the amount and kinds of positive social reinforcement dispensed by preschool-age children to each other in nursery school. The investigation consisted of children between the ages of 3 and 4 years-old and the children were divided by groups of ages 3 and ages 4. The observation protocol was coded for occurrence of generalized social reinforcers that were developed by Skinner (1953). Skinner (1953) postulated that reinforcement from people gives rise to several important forms of generalized social reinforcers: attention, approval, affection, submissiveness, and tokens.

This study found that children in the older groups reinforced their peers at a significantly higher rate than those in the younger groups using the generalized social reinforcers and that the amount of reinforcement given was positively related

to the amount received. Reinforcement was dispensed in a higher proportion when a child was engaged in an unstructured play activity than when engaged in other activities (such as art, music, or table games).

Several forms of peer-reinforcement interventions have been successful in teaching social skills to children who are withdrawn (Strain, 1977; Strain, Shores, & Timm, 1977). In the investigation by Strain et al. (1977), peers were trained to initiate social interactions with preschool children with behaviorally disordered. During periods of increased social initiations, the target children's emission of positive social behaviors increased dramatically. A question of significant practical and theoretical importance is whether or not such an intervention results in behavior change that generalizes across time and settings.

Strain (1977) conducted a similar study using a withdrawal of treatment design to evaluate positive initiations by an age-peer as an intervention for isolated preschool children. Increases in the reinforcers initiations resulted in an immediate acceleration in the frequency of the target subjects' positive social behavior during training sessions. Additionally, positive social behaviors were also observed to increase during generalization sessions. The results suggest that (a) peers may be trained successfully to set the occasion for positive social behaviors by withdrawn classmates, (b) that increased social

responding by withdrawn children in the presence of frequent peer social initiations may also generalize beyond the training setting, and (c) that the magnitude of direct and generalization effects appears to be related to the entry-level repertoire of target children.

Strain and Odom (1986) suggest that a child-child interaction will occur effectively if children are taught and given the opportunity by the adult. Recently, some researchers have emphasized the advantages of combining teacher and peer reinforcement strategies in order to facilitate social interaction (Hodgens & McCoy, 1990; Odom, Ostrosky, Cronin & Keetz, 1992). Numerous attempts have been made to study patterns of young children's social behavior within the framework of reinforcement theory. However, only a few studies (Odom & Strain, 1986; Mize, Ladd, & Price, 1985; Hartup, 1964; Patterson, Bricker, & Greene, 1964), have dealt particularly with preschool-age peers as agents of reinforcement. The results strongly supported the utility of applying reinforcement theory to the observational study of aggressive behavior as it occurs in the nursery school.

Child-child interactions received the attention of several reinforcement theorists who conducted laboratory investigations of child behavior. These investigators have conceptualized the child, not only as a behaving organism, but also as a source of

reinforcement for the behavior of other children (Hartup, 1964; Patterson and Anderson, 1964).

There are numerous studies that have been investigated to determine if peers can serve as reinforcing agents to children that are socially withdrawn and have been successful in providing results that supports that notion. In addition, these successful studies have been conducted with children that have been diagnosed with other childhood pathologies. However, there have been very little studies conducted recently to continue the support that peers can serve effectively as reinforcing agents particularly at the preschool level.

Coaching

The second intervention method often used in studies with children who are socially isolated is coaching, which, in its purest form, consists of presenting instructions during a practice session (Wanlass & Prinz, 1982). Coaching can also be defined as a behavior-change technique that depends primarily upon the child's understanding of language and verbal concepts and it provides a conceptual framework for the child to exhibit certain social behaviors. According to Gresham and Evans (1987), coaching typically involves three components: (a) presentation of rules and standards for behavior, (b) behavior rehearsal, and (c) response feedback and discussion. Through direct instructions ideas concerning appropriate social behaviors are conveyed verbally, and specific examples of how to translate these ideas into behavioral sequences are communicated (Asher & Renshaw,

1981). The rationale for coaching is that children who are isolated are deficient in skills that are important for successful social interaction and, consequently, will benefit from coaching and practice under facilitative conditions (Wanlass & Prinz 1982).

A study was conducted by Oden and Asher (1977) to assess coaching as a method of training children who are socially isolated improve their sociometric status and increase their peer acceptance. A sociometric rating questionnaire was utilized for peer acceptance in both the pretest and posttest. Each child was assigned randomly to one of three conditions (coaching, peer-pairing, or control).

The results indicated that coaching was effective in increasing children's peer acceptance (sociometric), and gains were maintained at a 1-year follow-up. However, coaching did not generalize from one situation to another.

Coaching techniques were used with aggressive preschool children involving three concepts. Each concept was taught by asking the child questions regarding aggressive behavior and providing prompts and clarification to the child's verbalization of these concepts. Compared to a control group, children receiving the coaching procedure showed a decrease in negative peer interactions and an increase in positive peer interactions. The target children maintained the decrease in aggressive behaviors at a 2-week follow-up (Zahavi and Asher, 1978).

Gottman, Gonso, and Schuler (1976) used coaching to teach friendship skills to third-grade isolated females. Friendship skills included: (a) greeting; (b) asking for and giving information; (c) extending an offer of inclusion; and (d) effective leave-taking. These skills were found in a previous study, Gottman, Gonso & Rasmussen (1975), to discriminate well-accepted from poorly-accepted children. Furthermore referential communication skills were coached. These skills taught children to take the listener's perspective. Results indicated that coaching increased the frequency of subjects' nominations on sociometric measures and the target children increased their social interactions with other children.

In an analogous study, Gresham and Nagle (1980) compared modeling, coaching, and an abbreviated combination of modeling and coaching (MAMC) to teach social skills to third and fourth grade children.

Significant increases in play with the sociometric rating scale for all treatment groups, as well as significant increases in rates of positive peer interaction in classroom settings were noted. Furthermore, groups that received a coaching component (Coaching and MAMC) showed greater decreases in rates of negative peer interaction. It was concluded that coaching and modeling are effective social skills training strategies and that an abbreviated combination of these two techniques does not add to the effects.

Skill training programs, specifically coaching were used to improve peer interaction with low social status preschool children. Mize and Ladd (1990) coached children in leading peers, asking questions, making comments, and supporting peers. The trained children exhibited increased use of the skills and improved in friendly social behaviors.

Tolbert (1997) employed an alternating treatment design (ATD) to examine the efficacy of two social skills interventions, symbolic modeling and coaching, as treatments to enhance the social interactive skills in socially withdrawn preschool children. Four preschool children were selected to participate in this study. Each child was exposed to both treatments under an ATD. The coaching sessions were conducted similar to Oden & Asher (1977). The modeling treatment consisted of children watching a film of their peers engaged in positive social behaviors with positive consequences. The target of observation was positive social behavior. Positive social behavior consisted of some of the same behaviors that were developed by Charlesworth and Hartup (1967): verbalization, affection, smiling and/or laughing, and giving. The frequency of verbalization, giving, and smiling was high, however, the frequency of the affection behavior was very low. Using the ATD, data indicated that there was an increase in participants' social behaviors under both interventions; however, participants performed better under the coaching conditions in increasing their social interaction skills. In the independent

verification phase, where coaching was presented alone, each child performed at approximately the same level. One-week follow-up showed that each child remained at the same level as the intervention phase.

Summary and Conclusion

In summary, professionals working with children have long been concerned about those who are socially isolated or withdrawn from their peers. Successful peer relationships and the ability to initiate and maintain positive social interactions are critical elements in a child's social developmental achievement. There have been numerous research studies conducted on socially isolated children using coaching and peers as reinforcers. However, in recent years researchers have not focused on conducting studies to support past studies. Results of the studies reviewed indicated that the two interventions increased the rate and quality of social interactions and the majority of studies conducted demonstrated positive results.

Early intervention seems to lessen the likelihood of social isolation or rejection later in life. There is increasing evidence that early intervention is more effective than later intervention with children who are socially isolsted (Yoshikawa, 1994). In support of this, Elliott and Gresham (1993) give evidence that social skills interventions are more effective for preschool children than for primary school-aged children. Throughout the literature, there is very little literature

investigating the combination of coaching and reinforcement using preschool children. More research should be conducted to support previous studies investigating the effectiveness of peers as change agents and coaching with kindergarten and preschool children who are socially isolated.

Data was examined to determine if positive social behaviors increase when the participants are trained using the coaching intervention or if there will be further increases in positive social behaviors when the participants' peers are introduced as reinforcers in addition to coaching? Further analyses were examined to determine maintenance after interventions have been withdrawn for one week.

METHOD

Participants

Four socially isolated and 6 non-socially isolated children were selected from regular education kindergarten classes. Kindergarten teachers were asked to rank order 5 of their students who *interact least with their peers* and then rate them using the Social Withdrawal Scale of the Child Behavior Checklist/4-18 (CBCL) (Achenbach, 1991). For the purpose of selection, social withdrawal was defined as having a T-score 70 or above on the social withdrawal scale of the CBCL. In addition, each teacher was asked to identify 4 children whom the target students had tried to interact during class with very little success. Furthermore, the non-socially isolated children were

described as compliant with no significant history of negative social interaction with the target subjects.

A direct observation of the rate of social interaction was conducted by the experimenter to further identify social isolates. The observation consisted of observing the students for a total of 36, 10-s intervals(6 min) during center time using partial interval recording.

Center time is described as a period in which the children are seated together to interact during fun activities. During each 10-s interval, the occurrence of positive social behaviors were recorded. In addition, one or more of the positive social behaviors were coded if observed during the 10-s interval. The *positive social behavior* category consisted of three behaviors: (a)smiling and/or laughing, (i.e., child reacting to another peer; (b) token giving, (i.e., giving tangible physical objects such as toys or food, spontaneously; and (c)verbalization, (i.e., general conversation towards another child). The criterion for direct observation was occurrence of one or more of the three social behaviors in no more than 25% of the 36 intervals. To be included in the study, children met the dual criteria of having exhibited withdrawal judged by the teacher on the CBCL and displaying a low level (less than 25% of intervals) of positive social behaviors with peers during direct observation. After meeting dual criteria, an informed consent packet was sent home for consent from parents to include their children in the study.

Ten students were identified by their teachers and met criteria for being either a peer respondent or socially isolated participant. The coaching participants included 3 boys and 1 girl and 3 boys and 3 girls made up the peer response group. In addition, all the participants were African American.

Direct Observation Procedures

Each child selected was observed using the same observational procedure as was used for subject selection. This observation procedure continued throughout the study.

During each 10-s interval, two separate categories of behavior were observed; peer response and positive social behaviors. The categories were coded so that a record was obtained of the kind of positive social behaviors a participant dispensed and received from their peers. The positive social behavior did not require a response from a peer to be coded for occurrence. However, peer response was recorded if positive behavior was directed toward a peer from the participant and the peer reciprocated by exhibiting one of the three behaviors. Measures of social behavior included the percent of intervals during which peers exhibited peer response behaviors and the percentage of intervals during which the participants exhibited positive social behaviors.

Intervention

*Coaching.*In the coaching sessions the children were verbally instructed by the coach on the following concepts:

smiling and laughing, token giving, and verbalization. The coach taught each of the concepts separately and in order. In each session, the same key steps were followed in sequence for each concept: (a) the coach proposed that the concept is important in helping to make playing more enjoyable; (b) the child was asked to provide specific behavioral examples of the opposite type of behavior; (c) the coach repeated or rephrased the child's examples or provided examples if the child did not respond; (d) the coach probed the child's understanding by requesting specific behavioral examples of the concept with reference to the game the child had previously played; (e) the coach asked the child to evaluate whether each of the behavioral examples would be likely to result in making the game better; (f) the coach then asked the child to try out some of the positive ideas; and (g) the coach told the child that she would check back to ask how helpful the ideas were. This follow-up occurred after the observations had been conducted for each center-time session. In the 3- to 5-min follow-up, the coach provided praise contingent on appropriate behavior and asked the child, "Did you get a chance to try out the ideas? Do you think that other children liked playing the game?" The coach reviewed steps if necessary, offered ideas for making the game better and offered suggestions as to why the game happened the way it did. The coaching sessions lasted approximately 15 min, after which the participants were observed.

The follow-up sessions lasted approximately 3-5 min, after the observation had been conducted.

Peer Response. In the peer response sessions, the children received training in a similar manner as the coaching participants. However, they were trained in how to respond to the "socially isolated" participants. Those sessions lasted approximately 15 min each. In each session, the peer respondents were verbally instructed by the trainer on the following concepts: (a) giving attention and approval, (i.e., attending, offering praise and approval, smiling and laughing and verbalizing); (b) token receiving, (i.e., receiving tangible physical objects, such as toys or food); and (c) submission, (sharing and allowing another child to play).

The trainer proposed that responding to their peers was an important concept that would help to make center time more enjoyable for their peers. The trainer asked the children to provide examples of behaviors that would make center time less enjoyable. If the children did not respond with an example then the trainer provided examples. The trainer then asked the children for examples that would make center time enjoyable for their peers. The trainer provided examples of situations in which the trainees would have to respond to peers by using the concepts described above. Lastly, the trainer instructed the children to try some of the positive ideas and that she would check back. In follow-up, the trainer checked back to offer feedback and praise.

The follow-up procedures occurred in the same manner as in the coaching sessions.

Procedures

Baseline. Baseline was conducted during center time activities for a 1-week period or until stability was established. The stability criterion was three consecutive data points that fell within plus or minus 10% of the mean for all preceding data points in that phase (Kazdin, 1982). Data points represent the positive social behavior category.

Coaching. In the second phase, the coaching participants were brought to the experimental room, which was quiet and isolated. The trainer engaged the participants for approximately 15 min in didactic instructions aimed at teaching the concepts described above in the intervention section. Immediately after the participants were coached, they returned to their classrooms to sit at a table together. The participants were given 2-3 min to re-adapt to the classroom after which they were observed for 36, 10-s intervals.

Coaching and Peer Response. In Phase three, coaching and peer response sessions were held sequentially. The coaching sessions followed the peer reinforcement sessions. Furthermore, the same procedure used for the coaching participants was used for peer respondent participants.

Treatment withdrawal.This phase involved the coach/trainer withdrawing all coaching and training of participants. However, observation of the participants continued. Phase four began 2 days after phase three. Observations were conducted every other day for a 1-week period.

Design

A multiple baseline design (Barlow, Hayes, & Nelson, 1984) across subjects was employed in this study to examine the effects of the two interventions. A multiple baseline was implemented across Participants 1 and 3 and then replicated across Participants 2 and 4. This type of multiple baseline design, because of replication across participants, allows for more control of possible extraneous variables. Participant 1 began Phase 2 when stability was met in Phase 1. Participant 3 began Phase 2 after a change in positive social behavior was observed for Participant 1. Participant 1 began Phase 3 after stability was met in Phase 2 or following 1-week of Phase 2. Participant 3 began Phase 3 after a change in positive social behavior was observed for Participant 1 in Phase 3. Participant 2 followed the same sequen as Participant 1 and Participant 4 followed the same sequence as Participant 3. Thus, the multiple baseline across Participants 1 and 3 was replicated for Participants 2 and 4.

In the design, Phase 1 (baseline) was the collection of data prior to any intervention being implemented. These baseline

observations assessed the level of interaction for each socially isolated participant. Phase 2 consisted of the trainer coaching the participants on how to initiate positive social behaviors. In the third phase, the socially isolated participants received the coaching intervention while the peer respondents' participants received training on how to respond to positive social behaviors. The fourth phase consisted of withdrawing the intervention for all of the participants. Withdrawing the intervention was intended to assess maintenance of the participants' positive behaviors.

Data Analysis

The data were analyzed using visual inspection of graphs showing changes in target behaviors across phases. Observations from phase to phase during center-time periods allowed assessment of the effectiveness of coaching alone and coaching plus peer response. The withdrawal of treatment allowed an assessment of the maintenance of treatment.

RESULTS

Treatment Integrity and Reliability

An observer was present for all 27 intervention sessions. Participants 1 and 2 participated in 20 intervention sessions. Participants 3 and 4 participated in 16 intervention sessions. Treatment integrity was checked twice during the coaching phase (phase two) and three times during the coaching and peer response

phase (phase three) by a second observer. Treatment integrity was 100% for both phases.

Interrater agreement was computed for each of the participants once per phase including the withdrawal phase. The mean interrater agreement for Participant 1 was 90%, with a range of 81% to 97%. Interrater agreement for Participant 2 ranged from 89% to 95% with a mean of 92%. For Participant 3, the mean interrater agreement was 89%, with a range of 83% to 92%. For Participant 4, the mean interrater agreement was 93%, ranging from 86% to 100%. Interrater reliabilities were uniformly high for all participants, yielding a grand mean interrater agreement across all 4 participants of 91%, ranging from 89% to 93%.

Overall Intervention Effects

The results of the multiple baseline analysis for the effectiveness of each intervention are presented in Figures 1 and 2. Each data point represents the percentage of intervals of positive social behaviors for each session. Each figure displays data during baseline (Phase 1), coaching intervention (Phase 2), coaching and peer response intervention (Phase 3), and withdrawal (Phase 4). Figure 1 depicts the percentage of intervals of positive social behaviors for Participants 1 and 3. Figure 2 depicts the percentage of intervals of positive social behaviors for Participants 2 and 4. In addition, Phase 3 and 4 include the percentage of peer responses to the participants' positive social

behaviors. Phase 2 serves as the baseline phase for the peer responses.

Effects for Participants 1 and 3. Figure 1 illustrates the positive social behaviors (smiling, sharing, and verbalization) initiated by Participants 1 and 3. These 2 participants served as the true multiple-baseline across subjects.

Figure 1 shows improvements in Participants 1's positive social behaviors, with a mean of 17% during baseline and 27% in the coaching phase. In Phase 3, the coaching and peer response intervention resulted in a further increase to a mean of 35%. A positive trend was noted for the last 3 days of Phase 2. However, the positive trend in Phase 2 changed to a negative trend at the beginning of Phase 3 and then returned to previous levels by the end of Phase 3. The withdrawal phase indicated that the of initiated positive social behaviors were maintained with a mean percentage of 36%.

In addition, Phases 2 and 3 show the percentage of peer interaction behavior toward Participant 1. The coaching intervention mean for peer responses was 19% and the coaching and peer response intervention mean for peer responses was 32%. Data suggest that the peers increased their response towards the participant, which was accompanied, by an increase in the participant's positive social behaviors.

The mean baseline level of positive social behaviors for Participant 3 was 5%. The coaching and coaching and peer response

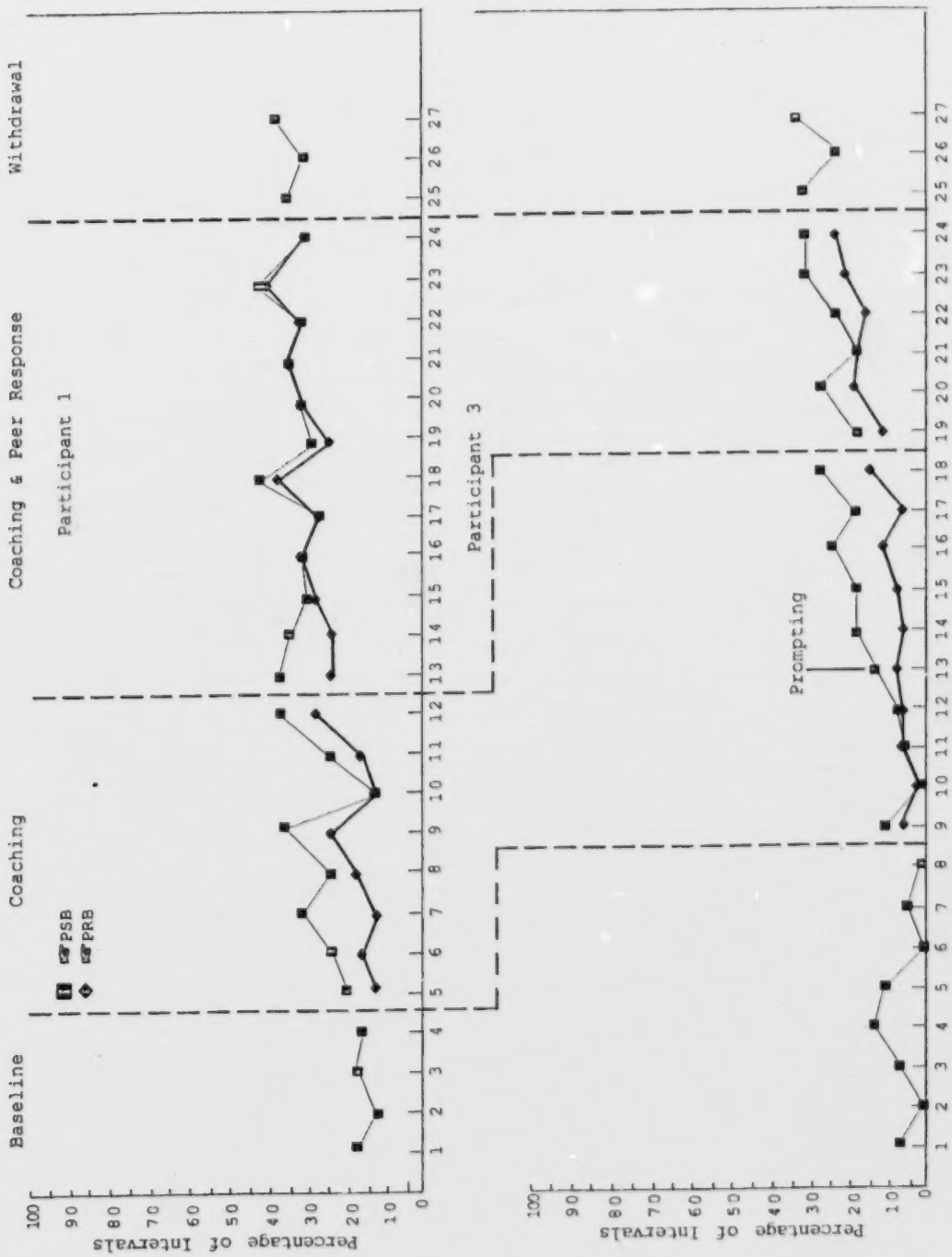

Figure 1. Percentage of Intervals of Positive Social Behaviors (PSB) and Peer Response Behaviors (PRB) for Participant 1 and Participant 3

interventions had positive social behavior means of 20% and 29%, respectively. During the withdrawal phase, positive social behaviors were maintained with a mean of 29%. Participant 3 showed improvement from the baseline phase to the coaching intervention phase. However, because the level of positive social behaviors was low at the beginning of the coaching phase, prompting was introduced on day 13 and continued throughout Phase 3, to assist the participant in initiating positive social behaviors. Following the implementation of prompting, there was a steady increase and positive trend in Participant 3's initiation of positive social behaviors. The behavior continued in the peer response phase with some variability and was maintained during withdrawal.

During the coaching phase the mean for peer response behaviors was 7%, which increased to a mean of 19% during the coaching and peer response phase. The increase of peer responses to the participant was associated with increases in the participant's initiation of positive social behaviors.

Effects for Participants 2 and 4. The percentage of intervals of positive social behaviors initiated by Participants 2 and 4 are presented in Figure 2. These participants' phases represent replication of the phases for Participants 1 and 3. Participant 2 is a replication of Participant 1. However, because of the introduction of prompting for Participant 3, Participant 4 does not serve as a true replication of Participant 3.

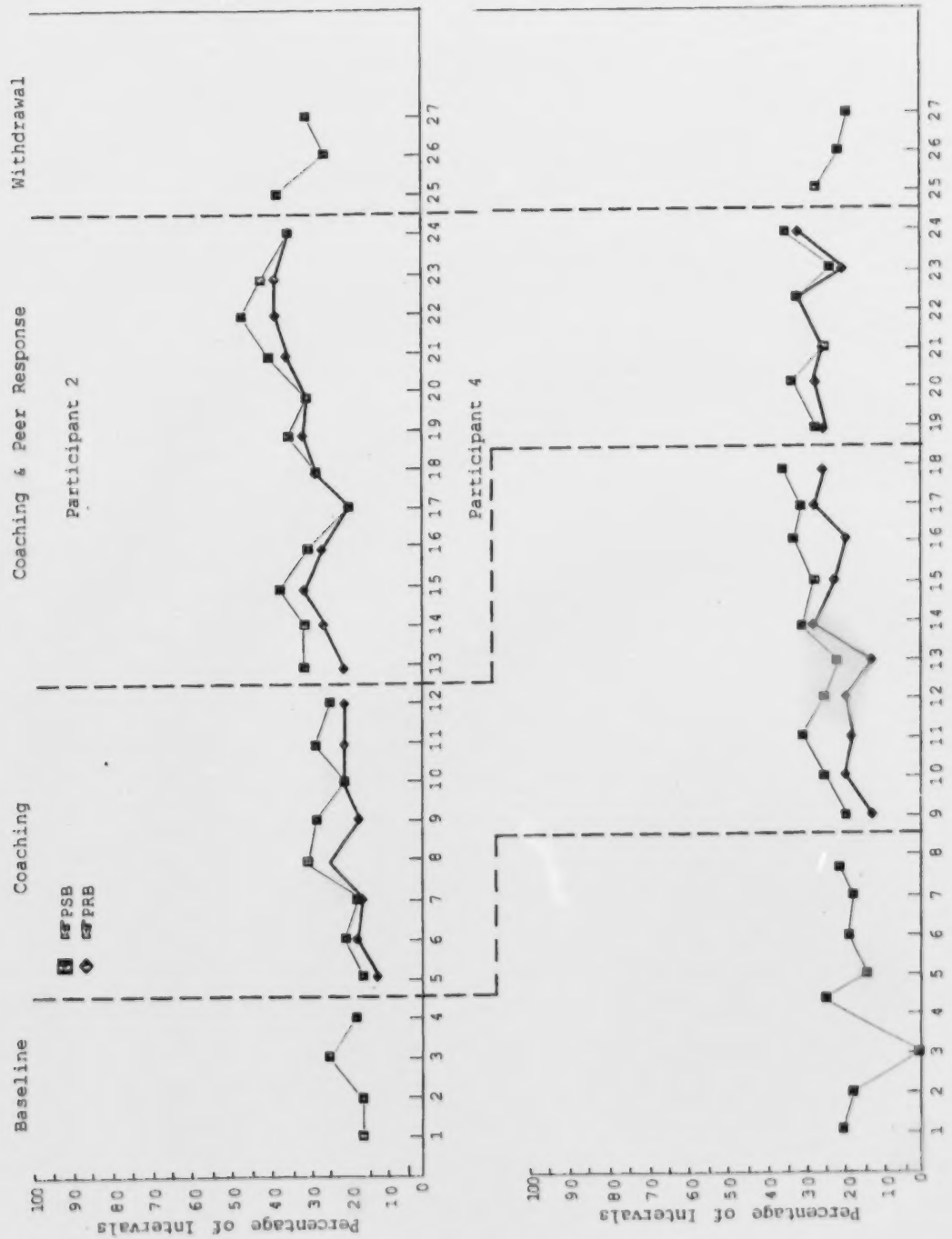

Figure 2. Percentage of Intervals of Positive Social Behaviors (PSB) and Peer Response Behaviors (PRB) for Participant 2 and Participant 4

Positive social behaviors increased from baseline (20%) to the coaching intervention (24%) for Participant 2. Participant 2, continued to display an improvement in the coaching and peer response intervention (35%), which was maintained after the withdrawal of interventions.

Mean intervals during which Participant 2's positive social initiations were followed by peer interactions are charted in Phases 2 and 3. Phase 2 and 3 yielded means of 20% and 31%, respectively. Instructing the peers on responding to the participant's initiations increased their responses from Phase 2 to Phase 3. The increase in peer response behaviors was associated with further increases in the participant's positive social behaviors in Phase 3. Positive social behaviors showed a mean of 17% during baseline for Participant 4. A gradual level change in positive social behaviors occurred from baseline through the coaching phase (m = 28%). No further change in positive social behaviors was noted during the coaching and peer response phase (m = 29%). The mean of 22% during the withdrawal phase indicated a decrease in the maintenance of positive social behaviors once the treatment was withdrawn.

The mean percentage of peer response behaviors for Phase 2 was 20%, which increased to a mean of 27% for Phase 4. The increase in peer response behaviors from Phase 2 to Phase 3 was small and was not associated with increases in Participants 4's positive social behaviors from Phase 2 to Phase 3.

DISCUSSION

Previous studies conducted on socially isolated children (Oden & Asher, 1977; Tolbert, 1997) have indicated that coaching is effective in increasing positive social interaction with peers. Other investigators have evaluated peers as reinforcing agents to children that lack social interaction skills (Charlesworth & Hartup, 1967; Strain, 1977) and results have indicated that peers can be positive reinforcers to children who lack frequent social interaction. The purpose of the current study was to contribute to the research on children who are socially isolated and explore possible differences between the two interventions (coaching and peer response). A secondary research question concerned the maintenance of the increase in positive social behavior after interventions have been withdrawn.

In addition, based on data presented in the study, the introduction of peers as respondents to socially isolated children in addition to the coaching intervention appeared to be the most effective intervention overall. The data suggested that the positive social behaviors of the participants slightly increased as the peers were introduced as reinforcing agents. Moreover, the use of a multiple baseline design across subjects indicated the results were less likely to be due to extraneous variables.

Data suggested that the rate of social initiations increased across all participants from baseline to the coaching

intervention. These results suggest that coaching was effective in increasing positive social behaviors among socially isolated children.

Effects on Positive Social Behavior. Although the results are similar to previous studies in showing an increase in positive social behaviors, increases in the present study were modest. All the studies that are mentioned with the exception of Tolbert (1997) were conducted with a preschool population. All of the studies reported a high level of increase for positive social behaviors using the same coaching procedures as the current study. In the present study the participants were from the same child population and were given the same procedures as with the participants in Tolbert (1997) study.

It is apparent, when looking at baseline, that the participants' had a small repertoire of positive social behaviors prior to intervention. However, it is unknown whether the children were exhibiting a low level of interaction because of (a) a performance deficit rather than a skill deficit, or (b) rejection/lack of reciprocal interaction from peers.

Throughout the study Participant 1 exhibited a higher level of initiation of positive social behaviors than Participant 3. This difference may have been due to the differences in (a) the environment (i.e., different classrooms; (b) the time of day that the study was conducted (i.e., morning vs afternoon); or (c) the participants' history. Across the first 5 intervention days,

Participant 3 exhibited a very low initiation of positive social behaviors. These interactions were low to the extent that they were similar to baseline. Due to the low initiation, on day 13 verbal prompting was introduced to assist in the increase of positive social behaviors. The resulting increase continued at a steady pace. Prompting was discontinued when the coaching and peer response intervention was introduced. It is unclear whether the increases observed in Phase 3 were the result of the coaching and peer response intervention or a continuation of the effects of the prompting.

Data for Participant 4 indicated a greater increase from baseline in all phases when compared to data for Participant 2. One may speculate that the prompting that was introduced on day 13 for Participant 3 may have inadvertly affected the performance of Participant 4. This speculation is because Participant 4 observed Participant 3 being verbally prompted in the classroom. The low peer responses to target subjects from their peers may be conceptualized as periods in which their positive social behaviors towards peers were ignored consistently.

Effects on Peer Response Behavior. Peer response behavior was observed during Phase 2 to serve as baseline data to compare with the coaching and peer response intervention phase. The peers responded at a low rate for all 4 participants. Furthermore, the peers responded at a lower rate to Participant 3's, than Participant 1's initiation of positive behavior. Their peer

response behavior is commensurate with the positive social behavior that was initiated by the participants.

In the coaching and peer response phase an increase in positive social behaviors was noted for all participants. The increases were noticeable but not dramatic. It is inconclusive as to whether the peers were the reason for the increase in the initiation of positive social behaviors or if it was a "carryover" from the coaching intervention (Barlow, Hayes & Nelson, 1984). Future researchers attempting to replicate and extend the findings of this study may want to develop a more robust procedure to identify the intervention that is responsible for the increase in positive social behaviors.

Although, increases were maintained when the interventions were withdrawn. It is still unclear as to whether the coaching intervention alone or the combination of the two interventions was the basis for the increases.

Conclusion

This area of research was necessary to investigate because of the paucity of empirical evidence. The present investigation indicated that introducing coaching as well as peers as reinforcing agents might enhance the initiation of positive social behaviors. Although, the coaching and peer response intervention was deemed more effective in increasing the initiation of positive social behaviors, the findings regarding the status of the peers as reinforcing agents are not so clear.

Based on the current study, it would appear that integrating children who display adequate social skills with children who are socially isolated could be employed to enhance the development of positive social behavior. In addition, it should be emphasized that just integrating peers, without adequately training them, would presumably not result in a substantial improvement of positive social development.

Multiple-baseline analysis indicated that the interventions (coaching and peer response) can be implemented across subjects in different settings and that changes from baseline levels generally occurred when training was introduced. Likewise, the present study demonstrated that positive social behaviors and peer response behaviors can be taught to children evidencing initially low rates of such behaviors.

Limitations

When evaluating the results of this study, it is important to note that Participants 1 and 2 were in a different classroom than Participants 3 and 4. Also, all participants were involved in center time. Participant 1 and 2 were involved in doing more structured center time where they were encouraged to verbalize in a calm tone. Whereas Participants 3 and 4 were involved in a less structured center time dealing with play activities and were allowed to verbalize in a moderate tone and move around the room freely. The difference in class structure makes the intervention results more meaningful because the participants continued to

exhibit the same patterns. Furthermore, the procedures for Participants 1 and 2 were conducted in the morning, whereas, procedures for Participants 3 and 4 were conducted in the afternoon. One may speculate that the difference in the time of day may have affected the results with regard to comparison of Participants 1 and 3 and Participants 2 and 4.

One of the major limitations to the present study is the time of year in which the study was conducted. The study was conducted at the end of the school year. According to studies conducted by Oden and Asher(1977), there may have been greater gains in the two behavioral categories if the study was conducted earlier in the school year when children's reputations and relationships are not quite as well developed. Another drawback to the present study was the withdrawal phase. This phase was conducted immediately after interventions were completed. Perhaps, a withdrawal and a follow-up would aid in indicating whether maintenance of the intervention effects in positive social behaviors would have continued. It also is possible that the increases in the withdrawal phase may have been partly due to it being 2 weeks before the end of school, and children were excited about the end of the year. Another limitation is the observational method that was utilized to record the peer response behaviors. Perhaps, the observations should record peers giving and receiving positive social behaviors from the participants, whether the participants initiate or not. Such a

procedure would give additional information on how the peers and participants responded to each other. The last major limitation to the present study was the lack of information about each participant and the possible reasons for the presence(peers) or absence (participants)of interaction behaviors.

Implications for Future Research

The present study differed from the majority of previous studies on this topic in that (a) the design was single-case using multiple-baseline analysis, (b) it compared two types of social skills intervention, and (c) it was conducted with a kindergarten sample. However, the present results support the use of interventions for kindergarten children as have other studies for other child populations. Future researchers would benefit from looking at recording the initiation of peers to participants. Moreover, future researchers may want to develop an observational method for examining the initiation of peer responses.

Investigating different settings versus same setting for generalization effects would be advantageous for future studies. Additionally, investigators would benefit from conducting the procedures using different times of the day versus same time of the day. Conducting studies at the beginning of the year, maintaining intervention for longer periods, fading interventions out gradually, and providing long-term follow-up for each participant would be beneficial. Future researchers may want to

include an extensive teacher interview to gather information on peer relationships and information on behaviors that are not predetermined by the experimenter. The information will be useful in determining if any prior problems such as anxiety, or elective mutism are relevant. Future investigators may want to include an incentive system for peer response to participants' initiation of positive behaviors.

Future studies might focus on the use of the two interventions with kindergarten children. The use of the interventions with children from this population would seem to lessen the likelihood of children becoming socially isolated as they enter school or later in development. In that the interventions increased positive social behaviors, further research should examine what it was about the coaching and peer response interventions that was effective. Lastly, much additional research is needed in the area of social skills training with children who exhibit a low rate of interactive behaviors.

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